

Amendments to the Claims

1-40. (Canceled).

41. (Currently Amended) A system for reducing the volume of vapor present in the ullage of a storage tank, comprising:

a conduit containing a cooling media;

a radiator located inside the ullage of the storage tank, wherein said radiator is connected inline to said conduit;

a pump and heat exchanger connected inline to said conduit; and

an electronic controller that is electrically coupled to said pump to activate said pump, wherein said electronic controller is adapted to activate said pump and circulate said cooling media through said heat exchanger to cool said cooling media and circulate said cooling media through said radiator to cool the vapor in the ullage of the storage tank;

a valve coupled inline to an outlet of said heat exchanger, wherein said valve is under control of said electronic controller and said valve is opened to allow said cooling media to circulate through said radiator; and

a storage tank pressure sensor that measures the pressure of the storage tank and inputs the storage tank pressure into said electronic controller;

wherein said electronic controller opens said valve and activates said pump if said storage tank pressure is greater than a preset pressure threshold.

42. (Canceled).

43. (Original) The system of claim 41, wherein said heat exchanger includes a fan to circulate outside air inside said conduit to cool the vapor.

44. (Original) The system of claim 41, further comprising a heat exchanger temperature sensor that measures the temperature of the vapor leaving said heat exchanger and inputs the temperature into said electronic controller.

45. (Canceled).

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46. (Original) The system of claim 41, further comprising an ullage temperature sensor that measures the temperature of the storage tank and inputs the ullage temperature into said electronic controller.
47. (Original) The system of claim 41, further comprising an ambient temperature sensor that measures the temperature of the outside air and inputs the ambient temperature into said electronic controller.
48. (Original) The system of claim 41, further comprising an ambient pressure sensor that measures the pressure of the outside air and inputs the ambient pressure into the electronic controller.
- 49-50. (Canceled).
51. (Currently Amended) The system of claim 50 ~~41~~, wherein said electronic controller additionally activates said heat exchanger if said storage tank pressure is greater than said preset pressure threshold.
52. (Currently Amended) ~~The system of claim 49, further comprising~~ A system for reducing the volume of vapor present in the ullage of a storage tank, comprising:  
a conduit containing a cooling media;  
a radiator located inside the ullage of the storage tank, wherein said radiator is connected inline to said conduit;  
a pump and heat exchanger connected inline to said conduit;  
an electronic controller that is electrically coupled to said pump to activate said pump,  
wherein said electronic controller is adapted to activate said pump and circulate said cooling media through said heat exchanger to cool said cooling media and circulate said cooling media through said radiator to cool the vapor in the ullage of the storage tank;  
a valve coupled inline to an outlet of said heat exchanger, wherein said valve is under control of said electronic controller and said valve is opened to allow said cooling media to circulate through said radiator;

a storage tank pressure sensor that measures the pressure of the storage tank and inputs the storage tank pressure into said electronic controller;

a volatile liquid temperature sensor that measures the temperature of the volatile liquid in the storage tank and inputs said volatile liquid temperature into said electronic controller[.]; and

an ambient temperature sensor that measures the temperature of the outside air[.];

wherein said electronic controller also determines if the volatile liquid temperature is greater than the ambient temperature by a preset threshold value and opens said valve and activates said pump if said volatile liquid temperature is greater than said preset threshold value.

53. (Original) The system of claim 52, wherein said electronic controller additionally activates said heat exchanger.

54. (Currently Amended) ~~The system of claim 49, further comprising~~ A system for reducing the volume of vapor present in the ullage of a storage tank, comprising:

a conduit containing a cooling media;

a radiator located inside the ullage of the storage tank, wherein said radiator is connected inline to said conduit;

a pump and heat exchanger connected inline to said conduit;

an electronic controller that is electrically coupled to said pump to activate said pump, wherein said electronic controller is adapted to activate said pump and circulate said cooling media through said heat exchanger to cool said cooling media and circulate said cooling media through said radiator to cool the vapor in the ullage of the storage tank;

a valve coupled inline to an outlet of said heat exchanger, wherein said valve is under control of said electronic controller and said valve is opened to allow said cooling media to circulate through said radiator;

a storage tank pressure sensor that measures the pressure of the storage tank and inputs the storage tank pressure into said electronic controller;

a volatile liquid temperature sensor that measures the temperature of the volatile liquid and inputs said volatile liquid temperature into said controller[.]; and

a ullage temperature sensor that measures the temperature of the ullage and inputs said ullage temperature into said electronic controller[.];

wherein said electronic controller closes said valve and deactivates said pump if said storage tank pressure is less than a pressure threshold, and either said volatile liquid temperature not greater than a preset temperature value, said volatile liquid temperature is not greater than said ullage temperature, or said difference in temperature between said volatile liquid temperature and said ullage temperature is not greater than or equal to a second preset temperature value.

55. (Currently Amended) A system for reducing the pressure of a storage tank, comprising:  
a storage tank that contains volatile liquid and has an ullage containing vapor;  
a conduit containing a cooling media;

a radiator located inside said ullage of said storage tank, wherein said radiator is connected inline to said conduit;

a pump and heat exchanger connected inline to said conduit; and

an electronic controller that is electrically coupled to said pump to activate said pump, wherein said electronic controller is adapted to activate said pump and circulate said cooling media through said heat exchanger to cool said cooling media and circulate said cooling media through said radiator to cool said vapor in said ullage of said storage tank;

a valve coupled inline to an outlet of said heat exchanger, wherein said valve is under control of said electronic controller and said valve is opened to allow said cooling media to circulate through said radiator; and

a storage tank pressure sensor that measures the pressure of the storage tank and inputs the storage tank pressure into said electronic controller;

wherein said electronic controller opens said valve and activates said pump if said storage tank pressure is greater than a preset pressure threshold.

56. (Canceled).

57. (Original) The system of claim 55, wherein said heat exchanger includes a fan to circulate outside air inside said conduit to cool the vapor.

58. (Original) The system of claim 55, further comprising a heat exchanger temperature sensor that measures the temperature of said vapor leaving said heat exchanger and inputs the temperature into said electronic controller.

59. (Canceled).

60. (Original) The system of claim 55, further comprising an ullage temperature sensor that measures the temperature of said storage tank and inputs the ullage temperature into said electronic controller.

61. (Original) The system of claim 55 further comprising an ambient temperature sensor that measures the temperature of the outside air and inputs the ambient temperature into said electronic controller.

62. (Original) The system of claim 55 further comprising an ambient pressure sensor that measures the pressure of the outside air and inputs the ambient pressure into the electronic controller.

63-64. (Canceled).

65. (Currently Amended) The system of claim 64 55, wherein said electronic controller additionally activates said heat exchanger if said storage tank pressure is greater than a preset pressure threshold.

66. (Currently Amended) ~~The system of claim 63, further comprising~~ A system for reducing the pressure of a storage tank, comprising:

a storage tank that contains volatile liquid and has an ullage containing vapor;

a conduit containing a cooling media;

a radiator located inside said ullage of said storage tank, wherein said radiator is connected inline to said conduit;

a pump and heat exchanger connected inline to said conduit; and

an electronic controller that is electrically coupled to said pump to activate said pump, wherein said electronic controller is adapted to activate said pump and circulate said cooling media through said heat exchanger to cool said cooling media and circulate said cooling media through said radiator to cool said vapor in said ullage of said storage tank;

a valve coupled inline to an outlet of said heat exchanger, wherein said valve is under control of said electronic controller and said valve is opened to allow said cooling media to circulate through said radiator;

a storage tank pressure sensor that measures the pressure of the storage tank and inputs the storage tank pressure into said electronic controller;

a volatile liquid temperature sensor that measures the temperature of the volatile liquid in said storage tank and inputs said volatile liquid temperature into said electronic controller[,] and

an ambient temperature sensor that measures the temperature of the outside air[,];

wherein said electronic controller also determines if the volatile liquid temperature is greater than the ambient temperature by a preset temperature value and opens said valve and activates said pump if said volatile liquid temperature is greater than said preset temperature value.

67. (Original) The system of claim 66, wherein said electronic controller additionally activates said heat exchanger.

68. (Currently Amended) ~~The system of claim 63, further comprising~~ A system for reducing the pressure of a storage tank, comprising:

a storage tank that contains volatile liquid and has an ullage containing vapor;

a conduit containing a cooling media;

a radiator located inside said ullage of said storage tank, wherein said radiator is connected inline to said conduit;

a pump and heat exchanger connected inline to said conduit; and

an electronic controller that is electrically coupled to said pump to activate said pump, wherein said electronic controller is adapted to activate said pump and circulate said cooling media through said heat exchanger to cool said cooling media and circulate said cooling media through said radiator to cool said vapor in said ullage of said storage tank;

a valve coupled inline to an outlet of said heat exchanger, wherein said valve is under control of said electronic controller and said valve is opened to allow said cooling media to circulate through said radiator;

a storage tank pressure sensor that measures the pressure of the storage tank and inputs the storage tank pressure into said electronic controller;

a volatile liquid temperature sensor that measures the temperature of said volatile liquid and inputs said volatile liquid temperature into said electronic controller[.]; and

a ullage temperature sensor that measures the temperature of said ullage and inputs said ullage temperature into said electronic controller[.];

wherein said electronic controller closes said valve and deactivates said pump if said storage tank pressure is less than a preset pressure threshold, and either said volatile liquid temperature is not greater than a temperature preset value, said volatile liquid temperature is not greater than said ullage temperature, or said difference in temperature between said volatile liquid temperature and said ullage temperature is not greater than or equal to a second temperature preset value.

69-111. (Canceled).

112. (New) The system of claim 52, wherein said heat exchanger includes a fan to circulate outside air inside said conduit to cool the vapor.

113. (New) The system of claim 52, further comprising a heat exchanger temperature sensor that measures the temperature of the vapor leaving said heat exchanger and inputs the temperature into said electronic controller.

114. (New) The system of claim 52, further comprising an ullage temperature sensor that measures the temperature of the storage tank and inputs the ullage temperature into said electronic controller.

115. (New) The system of claim 52, further comprising an ambient pressure sensor that measures the pressure of the outside air and inputs the ambient pressure into the electronic controller.

116. (New) The system of claim 54, wherein said heat exchanger includes a fan to circulate outside air inside said conduit to cool the vapor.

117. (New) The system of claim 54, further comprising a heat exchanger temperature sensor that measures the temperature of the vapor leaving said heat exchanger and inputs the temperature into said electronic controller.

118. (New) The system of claim 54, further comprising an ambient pressure sensor that measures the pressure of the outside air and inputs the ambient pressure into the electronic controller.

119. (New) The system of claim 66, wherein said heat exchanger includes a fan to circulate outside air inside said conduit to cool the vapor.

120. (New) The system of claim 66, further comprising a heat exchanger temperature sensor that measures the temperature of the vapor leaving said heat exchanger and inputs the temperature into said electronic controller.

121. (New) The system of claim 66, further comprising an ullage temperature sensor that measures the temperature of the storage tank and inputs the ullage temperature into said electronic controller.

122. (New) The system of claim 66, further comprising an ambient pressure sensor that measures the pressure of the outside air and inputs the ambient pressure into the electronic controller.



123. (New) The system of claim 68, wherein said heat exchanger includes a fan to circulate outside air inside said conduit to cool the vapor.

124. (New) The system of claim 68, further comprising a heat exchanger temperature sensor that measures the temperature of the vapor leaving said heat exchanger and inputs the temperature into said electronic controller.

125. (New) The system of claim 68, further comprising an ambient pressure sensor that measures the pressure of the outside air and inputs the ambient pressure into the electronic controller.

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